

QUALITY ASSURANCE SAMPLING PLAN
FOR
MISSISSIPPI CANYON OIL SPILL
PLAQUEMINES PARISH, LOUISIANA

Prepared for

U.S. Environmental Protection Agency Region 6
Linda Carter, Project Officer
1445 Ross Avenue
Dallas, Texas 75202

Contract No. EP-W-06-042
NRC No. N/A
CERCLIS No. N/A
FPN N/A
EPA OSC: Mike McAteer
START-3 PTL: Tom Walzer

Prepared by

Weston Solutions, Inc.
Robert Beck, VP, P.E., Program Manager
70 NE Loop 410, Suite 600
San Antonio, TX 78216
(210) 308-4300

April 2010

TABLE OF CONTENTS

Section	Page
1. INTRODUCTION	1-1
1.1 PROJECT OBJECTIVES	1-1
1.2 PROJECT TEAM	1-2
1.3 SITE DESCRIPTION AND BACKGROUND	1-2
1.4 OVERVIEW OF SAMPLING ACTIVITIES.....	1-2
1.4.1 Data Quality Objectives	1-3
1.4.2 Health and Safety Implementation.....	1-3
1.5 SAMPLING/MONITORING APPROACH.....	1-3
1.5.1 Air Sampling.....	1-4
1.5.2 Particulate Air Monitoring.....	1-5
1.5.3 Air sampling and Monitoring Program for Oil at Landfall.....	1-5
1.5.4 Sampling and Sample Handling Procedures.....	1-6
1.6 SAMPLE MANAGEMENT.....	1-6
1.7 SAMPLE PRESERVATION, CONTAINERS, AND HOLD TIMES.....	1-7
2. ANALYTICAL METHODS.....	2-7
3. DATA VALIDATION.....	3-8
4. QUALITY ASSURANCE.....	4-1
4.1 SAMPLE CUSTODY PROCEDURES	4-1
4.2 PROJECT DOCUMENTATION.....	4-2
4.2.1 Field Documentation.....	4-3
4.2.2 Report Preparation	4-5
4.2.3 Response Manager	4-5

LIST OF APPENDICES

Appendix	Title
----------	-------

Appendix A	Standard Operating Procedures
------------	-------------------------------

LIST OF FIGURES

Figure	Title
--------	-------

Figure 1-1	Proposed Air Monitoring Locations
------------	-----------------------------------

1. INTRODUCTION

Weston Solutions, Inc. (WESTON®), the Superfund Technical Assessment and Response Team (START-3) contractor, has been tasked by the U.S. Environmental Protection Agency (EPA) Region 6 Prevention and Response Branch (PRB) under Contract Number EP-W-06-042 to conduct air sampling and monitoring for the Mississippi Canyon Oil Spill in-situ burn off the coast of Louisiana near Venice, Plaquemines Parish, Louisiana. This will include sampling and monitoring during both upwind and downwind situations as the weather and plume conditions change. Region 4 has requested that state and local air monitoring agencies located near the Gulf of Mexico coastline in Florida, Alabama and Mississippi adjust their sampling schedules for this event toward a goal of daily sampling. A Proposed Air Monitoring Locations Map is provided as Figure 1-1. START-3 (with input from Region 4) has prepared this Quality Assurance Sampling Plan (QASP) to describe the technical scope of work to be completed as part of this Emergency Response. In the event of future burns, or modifications to the burn plan, modifications to the air monitoring plan will need to be generated to address changes in weather and operating conditions.

1.1 PROJECT OBJECTIVES

As part of the in-situ burn process and resulting plume observation, START-3 will conduct air sampling and air monitoring. The objective of the sampling and monitoring will be to assess the impacts of the in-situ burn of the oil spill on the air quality of the inhabited areas of far southeast Louisiana, specifically the area around Venice, Duvic and Fort Jackson, Plaquemines Parish, Louisiana. START-3 will utilize PQ200 air samplers, DataRAM DR-4000 particulate monitors and AreaRAE air monitors. Additionally, Summa canisters with flow controllers will be used to sample for volatile organic compounds. Each monitoring instrument will be set up to log data and each sampling instrument will be set to collect 8-hour samples.

Air samples will be collected by the PQ200 and analyzed for concentrations of particulates 2.5 microns and smaller. Volatile Organic Compound (VOC) samples will be collected using the Summa Canister and analyzed by method TO-15A. DataRAMs will be used in real-time monitoring of the particulate levels and AreaRAEs to monitor for VOCs. The EPA ASPECT

and TAGA programs will also be included in the data collection process. Aerial over flights by ASPECT during the in-situ burns and shoreline air sampling and monitoring using the TAGA bus will occur as directed by EPA OSCs.

1.2 PROJECT TEAM

The Project Team will consist of three persons for a 12 hour day shift and two additional persons for a 12 hour night shift. The day shift will consist of a site lead and one operational person. In addition the day shift will have one site data and sample manager. The night shift will consist of two operations personnel. In addition one START will be tasked with mobilization of resources from Dallas and logistical support.

EPA OSCs and START from EPA Region 4 will have responsibility for sampling and monitoring of the plume in Mississippi and Alabama as necessary. EPA ERT members will assist EPA Region 6 and 4 with sampling and data collection and analysis as needed. EPA will coordinate with the Unified Command as necessary.

1.3 SITE DESCRIPTION AND BACKGROUND

The Mississippi Canyon Oil Spill source is located approximately 52 miles southeast of Venice, Plaquemines Parish, Louisiana, (28.73667 N, -88.38722 W). The source is a leaking production well as well as a release of diesel fuel caused by damage from the sinking of the Transocean Deepwater Horizon drill rig at BP Site Mississippi Canyon 252. The current spill is estimated to be approximately 80 miles east to west and 42 miles north to south in size. The spill is affected by wind and wave action, which is currently keeping the spill offshore, however, forecasted weather conditions in the coming days is predicted to push the spill towards the southeast Louisiana coastline. British Petroleum (BP), the Responsible Party, through their Oil Spill Response Organization (OSRO) contractors, The Response Group, is planning to burn the oil in sections while weather conditions are favourable.

1.4 OVERVIEW OF SAMPLING ACTIVITIES

START-3 will conduct air monitoring of VOCs and sampling of PM-2.5 as well as VOCs. The PM-2.5 standard includes particles with a diameter of 2.5 micrometers or less. Air monitoring

and sampling will involve three air monitoring locations. Each air monitoring location will consist of one BGI PQ200 air sampler collecting air samples for PM-2.5 and one summa canister collecting ambient air for VOC analysis. Additionally, each air monitoring site will include one DataRAM DR-4000 to monitor the particulate levels and one AreaRAE PGM-5020 to collect readings for VOC using the 10.6 eV PID lamp. In the event of future burns, or modifications to the burn plan, modifications to the air monitoring plan will need to be generated to address changes in weather and operating conditions.

1.4.1 Data Quality Objectives

The objective of Air monitoring and sampling will be confirm the presence or absence of particulates (2.5 microns and smaller) and VOCs in air resulting from the off shore in-situ burn.

1.4.2 Health and Safety Implementation

The monitoring will be conducted in accordance with the site-specific HASP. START-3 will conduct air monitoring in Level D personal protective equipment (PPE) as stated in the site HASP. The FSO will be responsible for implementation of the HASP during the removal action. In accordance with the START-3 general health and safety operating procedures, the START-3 personnel will drive the route to the hospital specified in the HASP prior to initiating sampling activities.

The START-3 field team will mobilize the equipment required for the removal from the EPA warehouse located in Addison, Texas, and from WESTON's Regional Equipment Store (RES) warehouse in Houston, Texas, as necessary. If possible, START-3 will use government furnished property.

1.5 SAMPLING/MONITORING APPROACH

Air sampling and monitoring will be conducted in general accordance with the EPA guidelines and standard industry practices, including the DRAFT START-3 Emergency Response Air QASP and with WESTON Standard Operating Procedures (SOPs). The Region 4 samples will be collected following SESD's standard operating procedures. The site-specific sampling procedures are described in the following subsections.

1.5.1 Air Sampling

START-3 will deploy PQ200 air samplers equipped with a filter cassette to measure PM_{2.5} concentrations in ambient air at three locations in Plaquemines Parish, Louisiana. Three samplers will be set up at the pre-determined sampling locations which will be selected using local meteorological data, daily observations, distance from sources of interference, and locations of burning activities. Prior to use, START-3 will calibrate the samplers with the representative sampling media to verify correct flow rates. Current meteorological conditions will be documented at each sample location when each sample period begins and ends. START-3 will collect three 8-hour air samples at each station on a 24-hour per day schedule for the duration of the in-situ burn or as directed by EPA OSC. START-3 will also collect three 8-hour air samples using a summa canister with a flow controller at each air monitoring location. The summa canister will be mounted and secured no less than one meter from the ground. The flow controllers will be calibrated and checked for accuracy prior to sampling and between each sampling run. Additional VOC grab samples will be collected using summa canisters without flow controllers, each being allowed to collect ambient air for approximately 30 seconds. The summa canisters will be shipped to a qualified analytical laboratory for analysis by EPA method TO-15.

EPA will coordinate with Louisiana Department of Environmental Quality (LDEQ) to capture data being collected at two Air Sampling and Monitoring stations operated by LDEQ to monitor air quality. One of these stations is located in Kenner, Jefferson Parish, and the other is located in Chalmette, St. Bernard Parish. These two sites are outfitted with trigger Gas Chromatographs, and will also serve as locations for additional collection of Summa Canisters VOC samples.

Additionally, air quality monitoring and sampling stations operated by the states in Region 4 may be included in this plan. A total of three sites in Mississippi, four in Alabama, and seven in Florida operated by each state may be used to collect PM-2.5 samples and would be used as sites for Summa canister collection if needed, in addition to the air monitoring capabilities currently operated at each site.

1.5.2 Particulate Air Monitoring

START-3 will conduct baseline particulate (dust) monitoring downwind of the in-situ burn using DataRAM instruments over a 24-hour period during burning activities. The DataRAM instrument will be capable of data logging, and the results will be logged no less than every 5 minutes and downloaded to a computer at the end of each operating period. Air monitors will be collocated with PQ200 air samplers, which will be selected using local meteorological data, daily observations, and locations of burning activities. This logged particulate data will be distributed through the Unified Command as directed by EPA OSC to support the NOAA SMART Air Monitoring Plan for In-Situ Burns.

EPA Airborne Spectral Photometric Environmental Collection Technology (ASPECT) aerial flyovers will take place during in-situ burn operations. The ASPECT will collect information of the plume including particulates and combustion products and relay this data to EPA OSCs in the field. ASPECT aerial flyovers and data will be utilized by both Region 6 and 4 as needed. The ASPECT will only be employed in a safe manner and will be complying with all air traffic and weather restrictions.

1.5.3 Air sampling and Monitoring Program for Oil at Landfall

The air sampling and monitoring program for Oil Spill landfall operations will be modified as necessary to adjust for wind direction and landfall location. In summary, the program will include real-time monitors, aerial flyovers as necessary, real-time speciated voc sampling for BTEX compounds using the Trace Atmospheric Gas Analyzer (TAGA) and collection of whole air samples using Summa canisters as identified below:

- TAGA sampling in downwind shore locations for BTEX and any other appropriate compounds (ERT) - Available Beginning Mid-day April 30
- Aspect if necessary and appropriate for oil spill delineation (NDT) – Daylight operations as necessary – Beginning April 28.
- Downwind data ram/miniram particulate monitors near potentially exposed populations (R6 or R4 START) – Available Beginning April 28
- Summa Canister Capability for Grab Samples and 8-hour Composite Samples for odor complaints (R6 or R4 START) – Available Beginning April 28
- AreaRae and MultiRae detectors as appropriate for odor complaints (R6 or R4 START) – Available Beginning April 28

- Additional elements to be added as required.

1.5.4 Sampling and Sample Handling Procedures

Samples will be collected using equipment and procedures appropriate to the matrix, parameters, and sampling objectives. The volume of the sample collected will be sufficient to perform the analysis requested. Samples will be stored in the proper types of containers and preserved in a manner for the analysis to be performed per laboratory guidelines.

Dedicated sampling equipment, sample containers, and PPE will be maintained in a clean, segregated area. It is anticipated that each sample will be collected with dedicated sampling equipment and placed directly onto the laboratory supplied glass fibre filters. Personnel responsible for sampling will change gloves between each sample collection/handling activity. Each sample will be assigned a unique identification number and assembled and catalogued prior to shipping to the designated laboratory. Summa Canisters will be handled per laboratory and manufacturer's guidance, observing safe and effective collection and preservation of the data.

START-3 will collect field duplicate samples of air samples, both filters and canisters, and prepare filter blanks as needed during the removal action. QA/QC samples will be collected according to the following:

- Blind field duplicate air samples will be collected during sampling activities at locations selected by the EPA OSC and START-3 PTL. The data obtained from these samples will be used to assist in the quality assurance of the sampling procedures and laboratory analytical data by allowing an evaluation of reproducibility of results. Efforts will be made to collect duplicate samples in locations where there is visual evidence of contamination or where contamination is suspected. Blind field duplicate samples will be collected at the rate of one duplicate for every 10 samples collected.
- Filter blanks will be prepared by analyzing a laboratory supplied filter from the same batch as the collected samples at a rate of one filter per batch per day. The blank filter will be used to evaluate possible contamination.

1.6 SAMPLE MANAGEMENT

Specific nomenclature that will be used by START-3 will provide a consistent means of facilitating the sampling and overall data management for the project as defined in WESTON

SOPs. Any deviations from the sample nomenclature proposed below must be approved by the START-3 PTL or EPA OSC. The general nomenclature consists of the following components:

- Geographic location or OSC determined sample location.
- QA/QC type (normal, duplicate, etc.).
- Sequence (e.g., which sample it represents).

1.7 SAMPLE PRESERVATION, CONTAINERS, AND HOLD TIMES

Once collected, samples will be stored in antistatic plastic baggies. The PM 2.5 samples will also be stored at and shipped at 4 degrees centigrade. There are no holding time requirements for the sample storage. The samples will be sent to the designated laboratory by a common carrier.

Samples that have been analyzed will be disposed of by the designated laboratory in accordance with the laboratory SOPs.

Table 3-1
Requirements for Containers, Preservation Techniques, Volumes, and Holding Times

Name	Analytical Methods	Matrix	Container	Preservation	Minimum Volume or Weight	Maximum Holding Time
Particulate Matter (PM-2.5)	40 CFR Part 50, Appendix L and QAGD 2.12	Air	PTFE Filter	Antistatic bags, 4 C	NA	NA
VOCs	TO-15	Air	Summa Canister	None	6 Liter @ 11.5 mL/min + 10% for an 8 hour sample Collection	30 days

2. ANALYTICAL METHODS

Samples collected by START-3 will be analyzed by an EPA Region 6 Approved Laboratory utilizing 40 CFR Part 50, Appendix L and QAGD 2.12 for particulate matter and EPA Method TO-15 for VOCs.

3. DATA VALIDATION

START-3 will validate the analytical data generated by PEL Laboratories using EPA-approved validation procedures in accordance with the EPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004). A summary of the data validation findings will be presented in Data Validation Summary Reports as part of the final report. START-3 will evaluate the following applicable parameters to verify that the analytical data is within acceptable QA/QC tolerances:

- The completeness of the laboratory reports, verifying that required components of the report are present and that the samples indicated on the accompanying chain-of-custody are addressed in the report.
- The calibration and tuning records for the laboratory instruments used for the sample analyses.
- The results of internal standards analyses.
- The results of laboratory blank analyses.
- The results of laboratory control sample (LCS) analyses.
- The results of matrix spike/matrix spike duplicate (MS/MSD) analyses.
- The results of surrogate recovery analyses.
- Compound identification and quantification accuracy.
- Laboratory precision, by reviewing the results for blind field duplicates.

Variances from the QA/QC objectives will be addressed as part of the Data Validation Summary Reports.

4. QUALITY ASSURANCE

Quality assurance will be conducted in accordance with the WESTON Corporate Quality Management Manual, dated March 2004; the WESTON START-3 Quality Management Plan, dated August 2007; and EPA Quality Assurance/Quality Control Guidance for Removal Activities, dated April 1990. Following receipt of the TDD from EPA, a Quality Control (QC) officer will be assigned and will monitor work conducted throughout the entire project including reviewing interim report deliverables and field audits. The START-3 PTL will be responsible for QA/QC of the field sampling and monitoring activities. The designated laboratory utilized during the investigation will be responsible for QA/QC related to the analytical work. START-3 will also collect samples to verify that laboratory QA/QC is consistent with the required standards and to validate the laboratory data received. Air monitoring activities occurring within Region 4 will follow SESD approved Standard Operating Procedures.

4.1 SAMPLE CUSTODY PROCEDURES

Because of the evidentiary nature of sample collection, the possession of samples must be traceable from the time the samples are collected until they are introduced as evidence in legal proceedings. After sample collection and identification, samples will be maintained under chain-of-custody (COC) procedures. If the sample collected is to be split (laboratory QC), the sample will be allocated into similar sample containers. Sample labels completed with the same information as that on the original sample container will be attached to each of the split samples. Personnel required to package and ship coolers containing potentially hazardous material will be trained accordingly.

START-3 personnel will prepare and complete chain-of-custody forms using the Scribe Environmental Sampling Data Management System (SCRIBE) for all samples sent to a START-3 designated off-site laboratory. The chain-of-custody procedures are documented and will be made available to all personnel involved with the sampling. A typical chain-of-custody record will be completed each time a sample or group of samples is prepared for shipment to the laboratory. The record will repeat the information on each sample label and will serve as documentation of handling during shipment. A copy of this record will remain with the shipped

samples at all times, and another copy will be retained by the member of the sampling team who originally relinquished the samples. At the completion of the project, the data manager will export the SCRIBE chain-of-custody (COC) documentation to the Emergency Management Portal

Samples relinquished to the participating laboratories will be subject to the following procedures for transfer of custody and shipment:

- Samples will be accompanied by the COC record. When transferring possession of samples, the individuals relinquishing and receiving the samples will sign, date, and note the time of the sample transfer on the record. This custody records document transfer of sample custody from the sampler to another person or to the laboratory.
- Samples will be properly packed for shipment and dispatched to the appropriate laboratory for analysis with separate, signed custody records enclosed in each sample box or cooler. Sample shipping containers will be custody-sealed for shipment to the laboratory. The preferred procedure includes use of a custody seal wrapped across filament tape that is wrapped around the package at least twice. The custody seal will then be folded over and stuck to seal to ensure that the only access to the package is by cutting the filament tape or breaking the seal to unwrap the tape.
- If sent by common carrier, a bill of lading or airbill will be used. Bill of lading and airbill receipts will be retained in the project file as part of the permanent documentation of sample shipping and transfer.

4.2 PROJECT DOCUMENTATION

Field observations will be recorded legibly and in ink and by entry into field logbooks, Response Manager, or SCRIBE. Response Manager is the Enterprise Data Collection System designed to provide near real-time access to non-analytical data normally collected in logbooks. Response Manager provides a standard data collection interface for modules of data normally collected by START-3 field personnel while on-site. These modules fall into two basic categories for Response and Removal. The modules include Emergency Response, Reconnaissance, Facility Assessment, Shipping, Containers, Materials, Calls, HHW, and General/Site Specific data. The system provides users with a standard template for laptop/desktop/tablet PCs that will synchronize to the secure web interface using merge replication technology to provide access to field collected data via on the RRC-EDMS EPA Web Hub. Response Manager also includes a PDA application that provides some of the standard data entry templates from Response Manager to users for field data entry. Response Manager also includes an integrated GPS unit

with the secure PDA application, and the coordinates collected in Response Manager are automatically mapped on the RRC-EDMS interactive mapping site. GIS personnel can then access this data to provide comprehensive site maps for decision-making support.

Response Manager also includes an Analytical Module that is designed to give SCRIBE users the ability to synchronize the SCRIBE field data to the RRC-EDMS Web Hub. This allows analytical data managers and data validators access to data to perform reviews from anywhere with an Internet connection. The Analytical Module is designed to take the analytical data entered into EPA SCRIBE software and make it available for multiple users to access on one site. START-3 personnel will utilize SCRIBE for data entry on-site and will upload to the Response Manager Analytical module.

4.2.1 Field Documentation

The following field documentation will be maintained as described below.

Field Logbook

The field logbook is a descriptive notebook detailing site activities and observations so that an accurate, factual account of field procedures may be reconstructed. Logbook entries will be signed by the individuals making them. Entries should include, at a minimum, the following:

- Site name and project number.
- Names of personnel on-site.
- Dates and times of all entries.
- Description of all site activities, including site entry and exit times.
- Noteworthy events and discussions.
- Weather conditions.
- Site observations.
- Identification and description of samples and locations.
- Subcontractor information and names of on-site personnel.
- Dates and times of sample collections and chain-of-custody information.
- Records of photographs.
- Site sketches of sample location including identification of nearest roads and surrounding developments..
- Calibration results.

Sample Labels

Sample labels will be securely affixed to the sample container. The labels will clearly identify the particular sample and include the following information:

- Site name and project number.
- Date and time the sample was collected.
- Sample preservation method.
- Analysis requested.
- Sampling location.

Chain-of-Custody Record

A chain-of-custody will be maintained from the time of sample collection until final deposition. Every transfer of custody will be noted and signed for and a copy of the record will be kept by each individual who has signed it. The chain-of-custody is discussed in Subsection 6.1 Sample Custody Procedures.

Custody Seal

Custody seals demonstrate that a sample container has not been tampered with or opened. The individual who has custody of the samples will sign and date the seal and affix it to the container in such a manner that it cannot be opened without breaking the seal.

Photographic Documentation

START-3 will take photographs to document site conditions and activities. Photographs should be taken with either a film camera or digital camera capable of recording the date on the image. Each photograph will be recorded in the logbook and within Response Manager with the location of the photographer, direction the photograph was taken, the subject of the photograph, and its significance (i.e., why the picture was taken). Where appropriate, the photograph location, direction, and subject will also be shown on a site sketch and recorded within Response Manager.

4.2.2 Report Preparation

At the completion of the project, START-3 will review and validate laboratory data and prepare a draft report of field activities and analytical results for EPA OSC review. Draft deliverable documents will be uploaded to the EPA TeamLink website for EPA OSC review and comment.

4.2.3 Response Manager

START-3 will use the Response Manager module located on the EPA Web Hub, <https://solutions.westonproject.net/epawebhub/>, to collect and organize the data collected from project activities. The information to be included encompasses some or all of the following depending on the specific project needs:

- General Module – Site specific data including location and type of site. It also includes an area for key site locations including geo-spatial data associated with the key site locations.
- Emergency Response Module – includes the following sub-modules: Basic Info, HAZMAT, Release, Time Line Log, Incident Zones, Photos, Sensitive Receptors, Evacuations, Source, Cause, and Weather.
- Reconnaissance Module – provides standard templates with the flexibility of adding any additional questions of values to the drop-down lists for targeted reconnaissance efforts. Typically the data in this module is associated with ESF-10 deployments and the clean-up of orphaned containers and hazardous debris, but the module can be utilized for any and all reconnaissance activities.
- Facility Assessment Module – provides standard templates with the flexibility of adding any additional questions of values to the drop-down lists for assessments of structures. This is typically utilized for EPA regulated program facilities during an ESF-10 deployment of resources. This module can be utilized to track the assessment of any facilities including multiple assessments of the fixed facilities.
- Shipping Module – provides standard templates for creating a cradle-to-grave record of waste shipments from the site until they are recycled or destroyed. This includes the ability to capture manifests and manifest line items and to upload photos/original documents to support the records.
- Container Module – provides standard templates for cataloguing containers including HAZCAT and Layer information in each container. The module also allows for the tracking of which containers are bulked.
- Properties Module – provides standard templates with the flexibility of adding any additional questions of values to the drop-down lists for collection of property data including access agreements and assessments of the property and current status of property regarding the site removal action.

- Materials Module – provides standard templates for tracking materials that are brought on-site or that are removed from the site.
- Daily Reports – provides standard templates for tracking daily site activities, daily site personnel, and daily site notes for reporting back to the EPA OSC in a POLREP or SITREP.
- HHW Module – provides standard templates with the flexibility of adding any additional questions of values to the drop-down lists for tracking the amount of HHW collected at individual collection stations by HHW type.
- Data Files – data files can be uploaded in the photo-module section and be associated with individual records or with the site in general. The meta data associated with that data file can be filled in using the photo log fields.

The data stored in the Response Manager database can be viewed and edited by any individual with access rights to those functions. At anytime deemed necessary, POLREP and/or SITREPs can be generated by exporting the data out of Response Manager into Microsoft Excel/Word. The database is stored on a secure server and backed up regularly.